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The Hague Veterinary Congress.

A fortnight ago we published a letter from Mr. Fred Bullock, who is organising a party (which must number at least twenty members to obtain railway and steamboat concessions) to visit the Hague next month. Some time previously, in our issue of June 19th, Mr. Bullock gave particulars of the reduced fares, hotel rates and accomodation, and membership subscription, from which it is evident that the cost of attending the Congress is by no means excessive. Those who desire to attend should communicate with Mr. Bullock before the last day of the present month, in order to obtain the reduction in travelling expenses.

The Congress opens on Monday, the 13th of next month, and concludes on Saturday, the 18th. It will be attended by veterinarians from all parts of the world, and the gathering will include very many, if not nearly all, of the most distinguished members of the profession. Several well-known British veterinarians will take part in the proceedings, but it is especially desirable that there should be a good attendance of members from this country in addition to these.

International communication between members of all industries and professions is increasing every year, and the veterinary profession is fortunately no exception to the rule. At present we have a much better general knowledge of veterinary work abroad than we have ever had before, and that knowledge will be greatly increased in a few years' time.

Nevertheless, it may be doubted whether English practitioners in general even yet fully realise the advantages of intercourse with their foreign colleagues. Many of us who fully appreciate the enlargement of our professional outlook that accrues from membership of a veterinary society in our own country have never attempted to extend our acquaintance to our *confrères* abroad. The forthcoming Congress gives us an excellent chance of doing so.

In addition, it must be remembered that the International Veterinary Congress will soon throw a heavy responsibility upon the profession in this country. The next Congress, four years hence, will be held in England, and its successful organisation will certainly be a formidable undertaking. Some general support by the profession will be necessary, and that is most likely to be forthcoming if a fair number of our members this year visit the Hague, which is very near to England, and gain some idea for themselves as to what the organisation of such a Congress really means.

The Reconstitution of the N.V.A.

It seems that it is again necessary to emphazise the point that the Draft Scheme is not, at the present time, before the Societies, as Societies, for formal discussion. It is in the hands of a Committee of the *Presidents and Secretaries only* of the local societies, for examination and comment. That the members of this Committee should *personally* confer with the members of their own Society on the matter is a perfectly natural proceeding: but any idea of putting the present draft scheme before a meeting is distinctly premature and is to be deprecated.

JOINT EVIL.

As the season is almost at a close for this very troublesome affection of foals, it would be interesting to hear from practitioners the different methods of treatment adopted by them.

Last year, in these columns, the intratracheal injection of iodine was recommended, and no doubt many have tried it.

For the last three seasons I have adopted the following treatment with a fair amount of success: A hypodermic injection of ½ c.c. liquid antistreptococcus serum polyvalent daily, and give quinine and sodii bicarb. as a powder on tongue three times daily. The navel is syringed out daily with chinosol solution. The swellings on limbs are left absolutely alone, as resolution is looked for, but it appears of little use commencing treatment of this disease if abscesses have formed.

George Elmes, F.R.C.V.S.

CONTAGIOUS ABORTION IN CATTLE.

Both the interim report of the Abortion Committee and Mr. Stockman's address are of great interest, but the publication of a report at the present experimental and inconclusive stage of the labours of the Committee would appear to be an unwise step. It is no use telling cowkeepers that you have isolated and can cultivate in bulk the causal organism of abortion, unless at the same time you can demonstrate that your investigations will prove of pecuniary benefit to those immediately concerned. It is difficult for a professional man, and much more so for an agriculturist to gather how the "agglutinative," the "fixation of the complement," or "abortin" tests can as yet be of practical use to the stockowner. For since the "abortion cure" consisting of harmless, dead bacterial cul-

tures is, on the evidence of Mr. Stockman, unlikely to prove efficacious in animals past the fifth month of pregnancy, the owner therefore who purchased in calf cows would be no better off—even granting that one of these tests proved that his purchases, or some of them, were fouled with abortion germs—except in so far that he might pass the undesirables on to someone else. But further, as the preparation of the "abortion cure" would appear to be a tedious process, it is unlikely to be manufactured in commercial quantities.

The stockowner is conservative to a degree in all things. He is not yet reconciled to the tuberculin test, and in connection with abortion will hate to have the carbolic theory, to which he has been wedded for close on 40 years, upset by an interim report which offers him no helpmate in its stead. He has come to look upon the carbolic cure as a *sine qua non*, and has been taught by the Board of Agriculture to regard his old friend as the acme of a disinfectant. He has been instructed by County Council lecturers to use this hardy annual, both externally and internally, as a cure and preventative of abortion, and also been "lectured" as to washing and disinfecting the genital organs of the male before and after service. It is a little hard on him in these circumstances to rudely shatter his pet idol.

The present state of knowledge with regard to the immunisation of non-pregnant animal by "anti-abortion" offers him but small consolation; for it would appear that this virulent culture must not be used on clean premises to fortify non-pregnant animals against the invasion of the abortion germ, which may be carried on to those premises by any in-calf cow purchased at an auction mart. This restriction reads rather like a vote of non-confidence in "anti-abortion" and leads us to infer that it might be just as likely to cause abortion as to prevent it. In a crude manner a sort of anti-abortion was applied 30 years ago to graded stock on some of the Western American ranches. Pieces of tape were smeared with a discharge from a cow which had newly aborted. The tapes were dried and used for setoning heifers and non-pregnant cows, which were kept in fenced enclosures till impregnated by a pedigree bull. As far as I remember this setoning did not increase the number of calves in the round up the following year, but the process received full credit when a cow which had been setoned came up with living produce.

Of course it must not be understood that any inference relating to anti-abortion proper is to be drawn from this Wild West experiment. I merely mention it as an example of the working of the faith cure in a somewhat primitive community. The importer of the idea was, I believe, a Dutchman, who acted as cook for one of the outfits.

Almost every country has its faith healers. We have one in the district in which I reside. He has issued a pamphlet on abortion, in which he guarantees that after the secret remedy, with a capital R, has been twice swallowed, 95 per cent. of the cows in the worst infected herds will carry their calves to the proper time. The cows swallow the priceless boon—1s. 6d. each drench given only by the inventor—their owners take the faith cure, and judging from their numerous testimonials, not without unqualified success. But more miraculous still the same Remedy is said to be equally effective for "worm hoose" in calves and tuberculosis in older cattle.

It will be gathered that stockowners who are so well satisfied with this and other remedies—and the agricultural press says they "are hard headed men who know a thing or two"—will probably raise difficulties in way of veterinary surgeons co-operating with Mr. Stockman.

J. B. Robertson.

ABSTRACTS FROM FOREIGN JOURNALS.

Hæmorrhage and Rupture of the Liver.

Cadeac (*Journal de Méd. Vét.*) calls attention to the connection which exists between hæmorrhage and rupture of the liver. The irruption of blood into the substance of the parenchyma causes, sooner or later, rupture of the hepatic capsule. Horses affected with degenerations of the liver are especially liable to this accident, as fatty degeneration and particularly amyloid degeneration pave the way for rupture of the hepatic vessels. Poisons (as phosphorous and arsenic) and tumours (as sarcomata and angiomata) predispose to these hepatic hæmorrhages by causing congestion and atrophy of the essential elements of the liver.

The injurious influence which the toxins elaborated in the course of chronic affections of the bronchi and lungs exercise upon the hepatic cells and vessels is no less remarkable. When a horse affected with strangles retains a chronic bronchitis as the sequel, he becomes predisposed to a rupture of the liver; fatty degeneration and amyloid degeneration are produced by intoxication and perhaps also by insufficient oxidation, and these lesions are the preface to hæmorrhage and rupture.

When these internal causes have rendered the liver friable, accidental mechanical causes, which it is wrong to regard as determining factors, produce sanguineous inundation of the hepatic parenchyma. This interpretation is justified by the fact that the hæmorrhage may supervene suddenly after a long rest; the fattening of the animal and ferruginous medicines augment the quantity of the blood, which breaks through the altered vessels. The hæmorrhage which is sometimes produced during convalescence from infectious pneumonia has a similar pathogeny.

Cadeac reports an observation which may be regarded as typical of these hepatic degenerations arising from chronic bronchitis. A horse had strangles at the age of four years; and afterwards continued to be affected with a chronic cough, which resisted all treatment. Nevertheless he was very vigorous, and did good work until twelve years old. An accident precipitated his end; an entire horse leaping upon him and covering him with his forelimbs as if in copulation. The subject strug-

gled to disengage himself; and afterwards, when brought back to the stable, refused food and became extremely dull.

Cadeac examined the horse, and found a slightly elevated temperature (100·7 F.) The action of the heart was violent; the extremities were cold; the pulse was weak without being thread-like; the respiratory murmur was normal; the loins were yielding. The only alarming symptom was extreme pallor of the mucous membranes, which appeared bloodless. As the horse was in good condition, this symptom was especially significant, and led Cadeac to suspect an internal hæmorrhage.

For the next few days the condition remained almost stationary. Slight constipation was apparent, the horse passing small, dry, hard pieces of dung. The loin was very sensitive to pressure; the temperature remained stable at 100·7 F.; the action of the heart was less violent, but the pallor of the mucous membranes and the inappetence persisted. Death took place suddenly on the fourth day.

At the autopsy, as soon as the abdomen was opened, a considerable quantity of blood escaped from it. The liver was greatly hypertrophied, weighing just over 90lb, and was bosselated and deformed. Its edges were thick, tumefied, aud rounded. The anterior aspect of the left lobe showed a rupture of the capsule having a length of ten or twelve inches and a breadth of six or seven inches. The ruptured part was covered by protuberant blood clots and by parenchymatous *débris* reduced to pulp. Another much smaller rupture occupied the inferior edge of the middle lobe; a third was observed upon the inferior portion of the posterior aspect of the left lobe, and a fourth existed in the vicinity of this.

It seems that the rupture was caused by the concentric pressure which the limbs of the stallion exercised upon a liver predisposed to rupture. The hepatic tissue, in all the parts not invaded by hæmorrhage, was obviously yellowish and granular; it was soft and doughy, and its lobules were clearly defined; it was crushed without difficulty by the pressure of the finger; upon section, it appeared bloodless and fatty. The parenchyma was stained mahogany brown by a weak solution of iodine. These characters testified to the co-existence of two degenerations—viz., amyloid and fatty degeneration.

The thoracic organs showed no particular lesion with the exception of the bronchi, the mucous membrane of which was roughened, thick, and covered with viscid and adherent mucus.

Cadeac considers the case an illustration of the secondary effect which chronic bronchitis exercises upon vascular organs, especially upon the liver, which thus often undergoes amyloid or granular-fatty degeneration, predisposing it to rupture. (*Annales de Méd. Vét.*)

W. R. C.

Why the Institute Pasteur Receives Thirty Millions of Francs.

In a few days the Institute Pasteur (Paris) will be placed in possession of the legacy of Monsieur Osiris.

The last legal formalities are completed, and about thirty millions of francs will pass to the account of the establishment in the rue Dutot. It is a new era of research and of experiment which commences; it is, perhaps, a victory over tuberculosis, over cancer—a world wide blessing.

We owe this to Doctor Roux. The full facts of the matter were only made known to us yesterday.

In 1903 Mons. Osiris founded his triennial prize of £4,000 as a recompense for the scientist, the litterateur or the artist who had done most for humanity during the previous three years.

The Osiris prize was awarded to Dr. Roux for his marvellous discovery of diphtheria antitoxic serum, which saves every year the lives of tens of thousands of children.

Monsieur Osiris did not know Doctor Roux personally, but he sought him out, and found that the celebrated scientist lived in a little flat rented at £24 a year, and that the emoluments from his appointments amounted to an annual income of a little under £240.

For a man of great commercial affairs like Osiris this was a great surprise. But this was not all. He was astounded to find that this poor and glorious man had handed over his prize of £4,000 to the funds of the Institute of which he was the Director.

The multi-millionaire, much disturbed in mind, questioned the distinguished savant who replied very simply:—

"The man I have become, the researches, the studies, and the discoveries I have been able to make I owe to the House of Pasteur, and to it must revert the fruits of my work."

Perhaps Osiris did not completely understand, but his admiration was without reserve.

He conceived a profound friendship for Dr. Roux, and as a thoughtful and practical business man he one day asked of him: "How is the Institute Pasteur supported. What are its resources"?

"The Institute Pasteur," said the savant, "possesses little or nothing. Its income is derived from the sale of serums. For the moment it is abundant, it is true, but should this fail we could not continue our researches, and we should have to close our laboratories."

It was then that Osiris decided to assure the prosperity of the House of Pasteur by bequeathing to it the immense fortune of thirty millions francs (about £1,210,000 sterling).—*Le Matin.*

H. C. Wilkie.

MALLEIN AND TUBERCULIN.

By Sidney Villar, F.R.C.V.S.

(Presented at the meeting of the National Veterinary Association, Harrogate, July 8th.)

Gentlemen,—Whilst fully appreciating the great honour which your President and Committee have done me in inviting me to read this paper, I cannot but regret the duality of the subject chosen. Within the somewhat brief period which has elapsed since this invitation was extended to me it would be impossible to attempt to institute any line of research with the hope of gleaning any original fact either as to mallein or tuberculin to lay before this meeting, more especially is this so as for nearly two decades, since Koch in 1890 announced his discovery of tuberculin, and the Russian veterinary surgeon, Kelning, in the same year discovered mallein, the most able men in the medical and veterinary professions throughout the world have been working at these subjects, aided by, or at all events criticised by agriculturists and the general public. Both mallein and tuberculin may be described as well-worn subjects and any paper read under such circumstances must

largely take the nature of repetitions of the observations and views of others.

But if the purview of this paper is a wide one it possesses the advantage of offering you a large scope for discussion, and I venture to hope that gentlemen present will not only freely criticise any points I may raise, but that they will be good enough to give us their personal experiences of the value of mallein and tuberculin, and so add to the general knowledge of these subjects.

It is, however, impossible to anticipate that anyone can bring forward any facts which will shake our faith in the great value of mallein as a diagnostic agent in glanders, indeed it is as nearly as possible infallible as a test for that disease ; and as regards tuberculin, we shall probably all agree with the view expressed by Sir John M'Fadyean that the tuberculin test for tuberculosis in cattle "is when properly carried out one of quite remarkable accuracy" (*Journal of Comparative Pathology and Therapeutics*, Vol. xvi., p. 159).

I propose firstly to consider some details which are common to both the subjects of this paper and then to deal separately with mallein and tuberculin.

Both these substances are manufactured in the same way—B. tuberculosis and B. mallei—the active living bacilli which are the cause of those diseases are cultivated for several weeks in bouillon or broth to which a little glycerine has been added. As a result the broth is crowded with bacilli, which are then all killed by subjecting it to sufficient heat. It is then filtered through porcelain which removes all dead bacilli and *débris*, and the filtrate consists of a fluid which holds in solution chemical substances the precise composition of which is unknown, but which were produced or generated by the living bacilli in the performance of the functions of their life. This clear filtrate is the fluid we use in testing ; it contains no bacteria, bacilli or living organisms of any sort. Carbolic acid '05 per cent. is added as a preservative, and in this state we use it with the certain knowledge that it will produce no permanent ill effect in the animal on which it is employed.

It is advisable to use tuberculin and mallein of recent manufacture, but the material now supplied to us in hermetically sealed glass tubes is reliable for a long period, certainly for a year.

It is said to make no difference to the potency of tuberculin whether the bacilli employed in its manufacture are obtained from a human or bovine source, one would quite naturally suppose that a strain of bacilli from the more virulent—the bovine—source should be used. Be that as it may, we know from practical experience of their effects that the tuberculins now on sale in this country differ greatly in their strength, and that it is possible to obtain a tuberculin, made and sold in perfectly good faith, which will cause at least fifty per cent. less reactions than other tuberculins on the market.

It is regrettable that no standard of strength for mallein or tuberculin is legally provided for and insisted upon. In the absence of such legal guarantee we must protect ourselves by purchasing our material for testing only from manufacturers whose mode of procedure is well known to us.

Cattle for a period before and whilst undergoing the test must be kept indoors and protected from draughts, and as far as possible from excitement.

Horses may be tested in the open air, provided they are tied up and have some shelter, such as the lee side of a wall or under trees, and are clothed at night and not left unattended.

The injection should be made immediately beneath the skin—the needles of the syringes usually supplied are much too thick and bulky—for many years I have used needles supplied by Messrs. Arnold very little thicker than those used in human surgery, without accident of any kind—a big needle is not only needlessly cruel to the animal, but increases our difficulty in puncturing the skin.

The needle and syringe should be boiled before use or rinsed in a 5 per cent. solution of carbolic acid. The skin at the seat of the operation both in horses and cattle should be swabbed with a similar solution of carbolic acid or some other disinfectant, not that such a swabbing will render the skin aseptic, but should any ill effect arise subsequent to the injection we have the satisfaction of knowing we have taken every care in operating, and done all that is practically possible to prevent any untoward effect arising.

Personally I have never had any ill effect either to horses or cattle from testing, but have heard of cases in which anthrax and quarter-ill have developed very shortly after the operation and which have caused the safety of these tests to be questioned.

Mallein.

In making a subcutaneous injection of mallein for diagnostic purposes in horses suspected of glanders we look for evidences of reaction to the mallein of which there may be three, viz. : (1) a thermal, (2) a constitutional, and (3) a local reaction.

In the majority of horses affected with glanders all three reactions are to be observed within 24 hours of the injection of the mallein, and in such cases there is no difficulty in arriving at a definite and certain opinion that glanders exists—indeed the process of diagnosis in such well-defined reactions is delightfully simple and is absolutely reliable, but there are a number of cases in glandered horses where only one of the three reactions may be definitely exhibited, and there are a still larger number of healthy horses—or at all events horses which are quite free from the bacillus of glanders, where we may get one of these three reactions supervene with some intensity on the injection of a dose of mallein.

It is such variations in the effects of mallein injections and the indications to be deduced from them which raise the mallein test to the level of a scientific process —a process the precise value of which can perhaps only be arrived at by much practical experience of testing. But given that the veterinary operator has this practical experience of the mallein test, with some knowledge of the history of the case under consideration, he is in a position in perhaps 99 out of 100 cases to say definitely that a horse is or is not affected with glanders.

Let us consider these three reactions separately.

The local reaction consists of a swelling, an œdema of the tissues, round the point of inoculation, it is the reaction to which the most importance is to be attached, and in my personal experience is the only reaction which invariably occurs in cases of glanders.

A typical local reaction commences as an almost circular swelling, standing well up from the surface of the neck around the spot where the needle puncture occurred and which is often two to three inches in diameter at the sixth hour after injection, it continually increases in size until at the 24th hour it may be seven or eight inches long and four or five inches in vertical measurement.

The swelling is persistent, always being evident for three or four days, often increasing in size up to the 48th hour, and amounting in some cases to a very considerable tumefaction of the neck.

The edges of the swelling are well marked, particularly at the inferior margin, due to the gravitation of the contained serum.

The swelling is firm to the touch until it has begun to subside, when it becomes "doughy" and will retain the impress of the finger for a few moments.

It is always extremely painful and the horse resents its being touched or cringes away from one's hand in fear.

In extreme cases the nose is protruded, the neck car-

ried stiffly, and if suddenly moved or compelled to turn round, the horse will grunt or groan.

For diagnostic purposes such very marked local reaction is not necessary, the painfulness and the persistence of the swelling and increase in size after 24 hours is sufficient—the non-glanderous swelling will have much decreased in size or totally disappeared in 24 hours.

In exceptional cases the swelling will not commence until after 24 hours and will then become prominent, in such cases the horse is glandered.

In suspected horses it is therefore necessary to watch the swelling for at least 48 hours provided a definite result is not earlier arrived at.

Often in healthy horses the only local trace of the injection of mallein is the displacement of a few hairs at the site of the needle puncture, but we may get a local swelling. "In horses that are not glandered the local swelling obtains its maximum size during the first 15 hours, and by the 24th hour has almost entirely disappeared. Its maximum diameter is usually about three or four inches." (Directions for use of mallein issued by Royal Veterinary College, London).

Porch says (*Veterinary Record*, April 20th, 1907) "there is frequently a swelling with a vertical measurement varying from four to eight inches, but only an inch or two in width, not tense or painful. This kind of swelling I do not consider as indicating that the animal is suffering from glanders—in fact, the vertical measurement is deceptive and useless; so far as size goes the horizontal measurement is the only one really significant."

I have frequently found a vertical swelling about the size of two fingers over the seat of inoculation and attach no importance to it even if it is present for 48 or 60 hours, provided it is not painful to the touch, neither do I regard as necessary serious the tumefaction of two or more lymphatic vessels radiating from a small swelling at the seat of inoculation.

Hunting points out that in purpura hæmorrhagica the swelling rapidly forms and is large by the 24th hour, but if the horse is not glandered it has disappeared in another 24 hours.

I have had an opportunity of making a post-mortem examination of a non-glandered and apparently healthy horse in which the local swelling was very marked at the 12th hour and had not disappeared at the 40th hour, there was no rise of temperature in this case. The swelling was not painful and was diffused over the surface of the neck—it did not stand out prominently as the true glanders reaction does—this tumefaction of the neck was probably quite rightly attributed to the use of a dirty needle or to some septic condition of the skin at the point of inoculation.

In estimating the value of the local reaction we have to take into consideration

(*a*) Its size and shape.
(*b*) Its rapidity of growth and duration.
(*c*) Its sensitiveness to the touch.

The thermic, thermal or temperature reaction consists in a rise of temperature of at least (two degrees) 2°F. within 16 hours of the injection of mallein.

Prof. M'Fadyean in the directions for use of mallein already quoted says "provided the temperature was normal (under 101°F.) before the injection, it will rise two degrees or more (103°—105°) during the next 15 hours if the horse is glandered, but it will remain practically unaffected (under 102°) if the horse is not glandered.

But it must not be taken for granted that a horse whose temperature rises two degrees within 16 hours of injection is necessarily glandered—indeed I would not accept any rise of temperature in itself as sufficient evidence of glanders—to be diagnostic we must also have some local swelling amounting to a local reaction.

Opinions as to the times at which the temperature should be taken so as to get a record of its rise differ considerably, thus in the directions for use of mallein already quoted it is directed that "the temperature must be taken at the 9th, 12th, and 15th hour after injection. The Board of Agriculture in its Circular to Local Authorities of 26th August, 1907, name the 6th, 9th, 12th, 18th, and 21st hours. Hunting, in his work on Glanders, says "I do not think any useful information is missed by not visiting the horse after injection until 16 hours have elaped." (Hunting: *Glanders*, p. 63).

My personal records include only three glandered horses in which the highest temperature was registered previous to the 15th hour, followed by a fall at that hour.

	Time of injection.	12th hour.	15th hour.	18th hour.	21st hour.
Bay gelding	101·8	105	104·8	...	104
Bay mare	99·8	106	105·8	105	...

In these cases the fall at the 15th hour is very small and no useful information would have been missed if the 12th hour temperature had not been taken.

The time at which the temperature of affected horses rises is variable. I have recorded a 2·2 rise—from 101·4 to 103·6—at the sixth hour, and a rise of 4·6°, *i.e.*, from 101·4 to 106 at the ninth hour.

My experience is that although the temperature may rise in glandered horses previous to the sixth or ninth hour it continues as high or higher until the 15th or 16th hour, or if, as in the two charts above, it falls between the 12th and 15th hour, the decrease of temperature is so small as to be unimportant. But the highest temperature in glandered horses with a normal temperature at injection may not always be reached at the 15th hour. A dark bay gelding, shown by post-mortem to be glandered, and having a temperature of 101° at injection, was 103·6 at the 15th hour, and 104° at the 22nd and 36th hours.

In this case also the thermal reaction was sufficiently high at the 15th hour and the indication given was not affected by the subsequent slight rise of temperature. For all practical purposes, if the temperature is normal at injection the temperature recorded at the 15th hour of the test is decisive of the thermal reaction.

But in apparently identical cases of glanders the temperatures will vary to an extraordinary extent as is shown by the following example. Two cart mares had been bought on the same day eight months previously from an infected stud. At the time of testing both were fat and in good condition, were at ordinary draught work in London and apparently in good health. At post-mortem both showed glanders nodules in both lungs, in each case several nodules were presented on longitudinal section of these organs, and in each the glanders lesions were confined to the lungs.

	Time of Injection.	12th hour.	15th hour.	18th hour.	21st hour.
Grey mare	101	102·6	103·8	...	103
Bay mare	99·8	106	105·8	105	...

In each an indicative thermal reaction was given at the 15th hour, but the variation in the individual rise of temperature was very marked.

In glandered horses whose temperatures are above normal at the time of injection the subsequent temperature curves are very often irregular and a fall in temperature is frequently shown, as the following recently recorded charts will show.

	Time of Injection.	12th hour.	15th hour.	18th hour.
Cab mare	103·4	102·2	104	103·6
Bay draught gelding	104	101·2	102·4	103·4
Bay cart mare	103·4	102·8	103·2	103·6
Bay cart gelding	103	101·8	102·2	103·4

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All of these horses were shown by post-mortem to be glandered—the first two were clinical cases, the last two were emaciated, but were at work up to a few hours before testing.

Hunting (*Glanders*, p. 64) says "it is inadvisable to make a mallein test of a horse with a temperature over 102·5. In cases where we test an animal with a temperature of 103° or higher, a fall of two degrees in 24 hours is a suspicious sign"—both these points are endorsed in the above charts.

The third—the systemic reaction—may be indicated by a depressed appearance, staring coat, irregular skin temperature, loss of appetite, hurried breathing, or stiffness of gait. Any or all of these indications may be found and with other reactions are of great diagnostic value. On the other hand, such indications of systemic disturbance are not infrequently absent in horses which are glandered and which are exhibiting both the thermal and local reactions.

I would submit that when glanders is present in a horse, the injection of mallein is usually followed by a well-marked thermic and local reaction accompanied by some systemic disturbance, but that when such positive diagnostic indications are not all present a local persistent reaction of a painful nature is in itself diagnostic of glanders: that a well-marked rise of temperature unaccompanied by a precise local reaction is not conclusive, but if accompanied by systemic reaction is, in a member of an infected stud, of the gravest suspicion and would warrant us in advising the slaughter of the animal.

In cases where the evidence afforded by mallein is suspicious but not conclusive we must re-test the animal —I have made such re-tests within a week with satisfactory results, using the opposite side of the neck for the injection—indeed in one case I had both marked thermal and local reactions, although the swelling from the first reaction had not entirely disappeared.

The Board of Agriculture in the Glanders or Farcy Order state such re-test must be made within 12 days, but not earlier than 10 days after the first test, and it is advised that a larger dose of mallein, say a dose and a-half, should be used for the second test, and the withdrawal of all restrictions upon movement is permissible with regard to horses in which this second application of mallein does not result in definite evidence of the disease within 48 hours.

This appears to be a weak point in the Glanders or Farcy Order, and one of which I have practical experience. I consider it would be far safer if it were made compulsory that all horses known to have been exposed to infection should be re-tested at an interval of two months after the last reacting or clinically diseased horse has been removed from the stud.

It is known that there is a period after the invasion of the horse's body by the bacillus of glanders—the incubative period of the disease—in which he will not respond to the mallein test. What the exact incubative period may be is unknown, it probably varies in different adimals, for some individual horses have greater resistant power than others, either from increased natural resistance or from being in better circumstances of housing, feeding, or work. Also the virulence of the virus itself and the route by which it gains access to the body may all influence the length of the incubative period. Cases of natural infection would be more prolonged than in experimental infection—except perhaps in those cases of farcy where the bacillus has found a direct entrance by means of a wound in the skin.

Hunting (*Glanders*, p. 65) points out that Nocard experimentally infected a horse by feeding with glanders bacilli, but got no reaction to mallein until the 21st day, and that in some horses experimentally infected by Sir John M'Fadyean a reaction to mallein was given 13 days afterwards.

He further says (*idem*) "We should probably be certain to detect all infected by repeating the test in any stud after the lapse of 14 days."

But this important point must not be overlooked—that by frequently dosing a horse with mallein, it will acquire a tolerance to it, so that mallein will cease to provoke a reaction. M'Fadyean says (*Journal of Comparative Pathology*, vol. xv., p. 86) "it was definitely established that when the mallein test is repeated at short intervals (a month or less) a horse may cease to react, although still glandered."

This power of acquiring tolerance to mallein must also be taken into account when used to indicate the recovery or non-recovery of a horse from glanders—so that when used for this purpose a considerable time must be allowed to intervene between the tests. The French Government require as an indication of recovery that a horse shall fail to react to the tests on two successive occasions at intervals of two months. A committee of the Royal Agricultural Society reported "that in practice the mallein tests should not be repeated oftener than every three months when the object is to ascertain whether the animal has actually recovered from glanders." (*Journal of the Royal Agricultural Society of England*, vol. 64, p. 273).

This acquirement of a tolerance to mallein has led to the supposition that injections of mallein may with advantage be employed as a prophylactic of glanders—there does not appear to be any grounds for this supposition, neither do injections of mallein appear to exert any curative effect in glanders.

Mallein may be used for diagnostic purposes in horses, asses or mules. Jowett points out (*Notes on Blood Serum Therapy*, p. 156) "that in testing mules double doses of mallein should be used." Doubtless some gentlemen prssent have had experience of this—fortunately, or unfortunately, it has never fallen to my lot to test a mule for glanders.

Tuberculin.

When a dose of tuberculin is given by subcutaneous injection, which is the method at present chiefly employed, the local reaction is so slight as to be unobservable in the living animal.

The manifest reactions we get to tuberculin are two —the systemic and the thermal.

The Systemic Reaction. Well within 12 hours after an injection of tuberculin the infected cattle will usually show some signs of being unwell, such as capriciousness of appetite and loss of inclination to chew the cud, with "staring coat," coldness of loins and rump, and arching of the back, rigors and diarrhœa are often present especially in milking cows, but these symptoms soon disappear. There is usually a falling off in the milk yield for 24 hours or so: in cases of severe reaction this diminution of the milk yield may be more marked. I have several times known the yield diminished by 50 per cent. for some days, indeed in exceptional cases cows do not return to their normal milk yield until another calving, but the systemic reaction even in animals badly affected with tuberculosis is not always shown, some diseased animals do not as a result of the injection (even though there is a considerable rise of temperature) experience any loss of appetite, or of milk yield, or show any symptom of ill health.

The Thermal Reaction to tuberculin is a gradual rise of 2.5 F. (2½ degrees) above the average normal temperature.

To obtain the average normal temperature of an individual animal it would be necessary to register it several times daily for three or four days.

Ainsworth Wilson (*The Veterinary Record*, Feb., 1908) says, "The temperature taking might be commenced with advantage a week beforehand: the morn-

The Veterinary Record, August 28th, 1909.

Mr. T. Spencer, *President.* Mrs. Carless, *Hostess.*

Mr. H. J. Dawes, *Hon. Sec.* Mr. W. S. Carless, *Host.*

Members and friends of The Midland Counties V.M.A., at Shrawley Woods, by the Severn river, August 17th.

Photo by H. Iliffe, 38 High Street, Worcester.

ing and evening temperatures at any rate for the three days preceding the test should be available." In a later paragraph this writer points out the great difficulty of making such prolonged observations in veterinary practice, and with this we all agree.

In the presence of such difficulties it is practically impossible to obtain the average normal temperature of the individual members of a herd, and under such circumstances we cannot do better than accept the figures issued by the Royal Veterinary College of London, in the directions for using their tuberculin, viz., "Animals in which the temperature rises gradually from the normal (between 101° and 102°) to 104° or more may be classed as tuberculous."

Authorities vary somewhat in their opinions as to the periods at which the temperatures should be registered.

The Royal Veterinary College of London direct that "ordinarily the temperature must be taken at the times of injection, and at the 9th, 12th, 15th and 18th hours afterwards." Some of the Colonial and Foreign Governments in the case of imported cattle ask for charts showing the temperatures at the time of injection, and at the 12th, 15th, 18th and 21st hours.

I consider the latter series of temperatures is the best.

Ordinarily a temperature which, though risen, has dropped by the 12th hour would not be a positive or even a suspicious reaction, an infected animal's temperature would not be on the decline at the 12th hour, therefore in practice the first time at which it is usually necessary to take the temperature is at the twelfth hour. But is it sufficient to cease registering the temperature at the 18th hour? I have no doubt that mistaken diagnosis may arise by not prolonging the observation until the 21st hour. A recent case of my own in a tuberculous cow bears this out.

Time of injection.	12th hour.	15th hour.	18th hour.	21st hour.
102	100·6	102	103	104·4

On frequent occasions I have met gentlemen who cease taking temperatures at the 15th hour: surely in all animals passed as sound on such temperature observations the test has not been properly carried out.

In cases where the rise in temperature—for in healthy cattle there is usually some slight rise—has not much exceeded one degree and has fallen by the 18th hour there is no need to continue the observation, but where the temperature rises to 103° at 18th hour, then in my opinion we are not justified in leaving the 21st hour temperature unobserved.

A practice I personally like is to take the temperature six or nine hours before, as well as at the time of injection, and at the same time on the day following the injection: we are thus able to compare the temperature of the 18th and 15th hours after injection with that of the same time of the previous day.

But not all cattle in which there is a rise from a normal initial temperature to 104 must be regarded as tuberculous. A sudden rise in the temperature to this point or more, with an equally rapid fall—a sudden jump in the temperature—is usually associated with some other morbid condition than tuberculosis.

The ideal chart of tuberculin reaction should have a good curve, the temperature should commence to rise between the sixth and ninth hour, should continue to gradually rise, have some persistence at its highest point and then gradually fall.

For the preparation of this paper I have recorded the evening temperature of 340 cows apparently in good health. It is obvious that in dealing with so large a number of animals, varying conditions of lactation, pregnancy, œstrum and general environment must have been included, also the animals must have been differently circumstanced as regards feeding, ruminating, drinking and resting, all of which have some influence on the temperature. Only seven of these cows registered below 101 F. (the lowest point reached being 100·4 and occurring in two cows). The temperature of fifty-five exceeded 102, and that of two hundred and seventy-eight varied from 101 to 102 F.

The evening temperature of yearling bulls and heifers exceeds that of cows: in such, an evening temperature not exceeding 103 cannot be regarded as abnormal, and I always without hesitation test such animals, but it is not advisable to test a cow or stock bull whose evening temperature by much exceeds 102 F.

The temperature of young calves, especially those fed from the pail is very inconstant. In a herd of ten all in apparent health, the evening temperatures varied from 99·8 to 104 F. It is well known that from indigestion and other slight causes the temperatures of these young animals often varies to an extraordinary extent within 24 hours.

This erratic tendency of the temperature of calves makes the testing of such animals untrustworthy and undesirable.

It is common to hear stock owners and cattle men say they do not believe in the tuberculin test, and point out that a certain animal or animals failed to pass in January and passed in July, or *vice versa*; there should be nothing in this to shake one's faith in the test. It is possible for an animal to recover from tuberculosis in a few months, and it is certain that any animal may become infected with this disease at any time, but the incredulity of the laymen is to an extent justified both by the accuracy and the inaccuracies of the tuberculin test.

Let me deal first with the latter. It must not be overlooked that a considerable period of time elapses between the invasion of the body by the tubercle virus and the capability of the animal to respond to an injection of tuberculin: experiments to determine the length of this period have been carried out by Sir John M'Fadyean, the Royal Agricultural Society, and by Nocard and Rossignol. These experiments proved that the period which elapses after infection before a distinct reaction to tuberculin can be obtained is very variable, and may be anything from eight days to over seven weeks. (*Journal of Comparative Pathology* Vol. XIV. p. 71). During this period—the period of Incubation—the tuberculin test may fail to indicate the presence of the disease. It is well known also that it may fail, and often does fail, to produce a reaction in animals far advanced in the disease; the probable explanation of this being that such highly tuberculous animals have themselves produced and hold in their organisms so much tuberculin that they are unable to respond to the test.

Then, again, the presence of, or the occurrence during the period of testing of other diseased or abnormal conditions may, as has before been pointed out, cause such variations of temperature as to negative the value of the test or lead to wrong deductions; we know also that cattle are tampered with by unscrupulous persons, who having become aware that repeated injections of tuberculin produce a certain amount of tolerance to its presence, do not hesitate to inject and re-inject an animal until for a time it will cease to react. The exhibition of febrifuge drugs and cold water, either swallowed or locally applied, may so reduce the temperature as to render the test misleading. Excitement, either sexual or from strange surroundings, and the near approach of, or the act of, parturition will sometime (not always) disarrange the test.

With all these opportunities of error, is it to be wondered at that diagnoses based on the tuberculin test are sometimes wrong!

The very accuracy of this test is also liable to mislead the inexperienced non-professional man, because an animal which has recent and few tubercular lesions will

frequently show a very marked reaction; its temperature will go to 106 or even higher, and it may be decidedly unwell for twelve or twenty-four hours; on post-mortem no tubercular lesion may be found, and the test is quite wrongly said to have failed. Veterinary surgeons who know the power possessed by the tubercle bacillus to take up its habitat and grow in practically all organs, tissues and membranes of the animal body will not assert that the test has failed, but will recognise that the lesion or lesions have been overlooked. Personally after diligent search the only evidence we have found in some cases has been caseation in some small lymphatic gland.

Professor Dewar (*The Veterinary Record*, 1907, p. 702) has said "Even although in post-mortem he might have had cases where he could not find a trace of tuberculosis he felt that the fault was his, and did not rest with the tuberculin." Romer (*Rev. Gén. de Méd. Vét.* 1906, p. 554) is of opinion that "the results shown by tuberculin injection are to be preferred even to the statistics obtained at abattoirs."

Usually the country veterinary practitioner has not the necessary opportunities or means for making a thorough post-mortem examination. Post-mortems on cattle at private slaughterhouses where carcases are to be subsequently used as food are altogether inadequate; yet this is the usual examination we have to conduct. We are not even permitted to open up possible seats of lesion, so that unless the *locale* of the disease is in the viscera or on the visible membranes, it is impossible to satisfy a layman that an error has not been made. For this reason it is perhaps not wise (as is done in mallein testing) to order the slaughter of reacting animals on the evidence of the tuberculin test alone. Another reason is that the lesion causing the reaction may be so small that if the animal is allowed to live it will recover, and cease to give a reaction to tuberculin.

I would be satisfied that such recovery had taken place in an apparently healthy animal if at two subsequent testings at intervals of two months there was no reaction shown.

Have injections of tuberculin any curative value in tuberculosis? This is a point upon which opinion is divided, personally I believe I have seen beneficial effects result from its use in tuberculous diarrhœa of cattle; then again some practitioners have asserted that the injection of tuberculin in young animals will act as a prophylactic of tuberculosis. I do not credit it with such power.

The tolerance which cattle may obtain to the action of tuberculin has been alluded to, and it is important to know at what period after a first testing a re-test may safely be made. I have experience of cows which have reacted to the test twice within a week, but there is no doubt that injections repeated at so short an interval will not always prove successful in inducing a reaction. Nocard who carried out extensive experiments found (*Journal of Comparative Pathology*, Vol. XVI. p. 67) that when the injection was repeated after an interval of one or two days only one third of the animals reacted, which after eight days not more than half reacted, but when fourteen days were allowed to elapse about two thirds of the animals reacted. An interval of twenty-five to thirty days after the first reaction was required, in order to insure a typical reaction occurring in all animals on the second injection.

In France also Vallée has made investigations into the fraudulent use of tuberculin by unscrupulous cattle dealers, and instituted experiments for the purpose of devising a method of testing animals which may have been to some extent protected by the prior injection of tuberculin.

As a result of these experiments, he advises that cattle which are suspected of having been tested a short time previously, should at the second test receive a double dose of tuberculin, and that their temperatures should be taken from the second hour after injection every two hours up to the 14th or 15th hour. He points out that under such conditions tuberculous cattle almost always react to a second injection, even if the interval between the tests is only 36 or 48 hours. Such reaction is intense, occurs at a very early period, and is very transitory—that whereas the temperature curve of a first injection is prolonged, that of a second test is indicative of a sudden transitory rise of temperature, so that after the 12th hour it furnished little guidance (*Rev. Gén. de Méd. Vét.*, vol. xl., p. 161).

In *The Journal of Comparative Pathology* for March last, Jowett confirms Vallée's observations: he says that he "has found this method eminently serviceable. On several occasions on which it has been practised the majority of reactors exhibited the maximum rise of temperature about the seventh hour after injection, *i.e.*, when the test had been carried out in accordance with Vallée's directions."

Vallée also states that even in cows affected with pulmonary or mammary tuberculosis, repeated reactions may be obtained by this method of testing (*idem.*)

Personally, I consider that for the diagnosis of mammary tuberculosis the ordinary method of tuberculin testing is of very little or no use.

The following chart of an apparently healthy cow, except that she had a chronic enlargement (hypertrophy) of one hind quarter of her udder, and whose temperature under the test rose only to 103·4 degrees bears this out:

Time of injection.	12th hour.	15th hour.	18th hour.	21st hour.
101·8	103	103	103·4	102·8

In this case the rise of temperature only amounted to 1·6 degrees and did not reach to 104° F.—so that on her chart the cow could only be regarded as suspicious of tubercle, yet the milk yielded by the enlarged quarter of her udder contained great numbers of tubercle bacilli.

Then again cows affected with some form of sporadic mastitis, and whose udders are free from tuberculosis may react to tuberculin owing to the presence of lesions in some other part of their bodies, and thus deceive the operator.

For the diagnosis of tubercular mastitis we must rely on clinical examination of the animal and the microscopical or biological testing of the products of the suspected quarter.

During the past two years some new methods of tuberculin and mallein testing have been exciting much attention. They consist in the local appplication of tuberculin or mallein to the skin or mucous membranes.

In the skin or cutaneous method, which is known by various terms, such as Endermic, Dermic or Cuti Test, a portion of the skin which the animal cannot well reach or rub—such as the sides of the withers or the back of the neck—is selected; after being shaved and cleansed, it is scarified to such a depth as to give rise to a slight oozing of blood and is then painted with tuberculin.

In operating in this way, Vallée found in tuberculous animals a very manifest cutaneous reaction by the 24th hour, which still increased and was most distinct about the 48th hour, and persisted with very marked characters four and five days after the operation.

He also found that "when strong mallein is diluted with an equal volume of boiled water and applied to a scarified area on the neck of a non-glandered horse, it does not provoke any reaction; but in three glandered horses similarly tested a very distinct local œdematous reaction was obtained from the ninth hour. Here, however, contrary to what is observed in the cuti-reaction to tuberculin, the phenomena disappeared very rapidly. (*Rec. de Méd. Vét.*, vol. 84, p. 308).

I am not aware that any British veterinary surgeon has published any record of the dermic form of mallein

testing, but Trotter, of Glasgow, has conducted some very interesting and valuable experiments with the object of investigating the reliability of this method of tuberculin testing when applied to animals with an abnormal temperature. (*Journal of Comparative Pathology*, vol. xxi., p. 153).

Mr. Trotter scarified a portion of skin about the size of a penny at the base of the skull and applied the tuberculin with a camel hair brush. In the experiment he tested 31 animals, and post-mortem examination proved the test to have been accurate in 20 of them.

Reinecke, a German investigator, was not even so successful as Trotter—of 25 animals submitted to skin inoculation, one showed a trifling skin reaction, this animal appeared on slaughter to be free from tuberculosis—of the other 24 animals which showed no reaction, eight were infected with tuberculosis. (*Journal of Comparative Pathology*, Sept., 1908, p. 257.)

The evidence available at present points to this scarification test being much less reliable than the ordinary subcutaneous test.

For the local application of tuberculin or mallein to a mucous membrane, the conjunctiva is usually chosen, hence it is known as the Conjunctival or Ophthalmic Test.

This method of testing appears to have been extensively employed for the diagnosis of tuberculosis in the human subject, and it has been the subject of much experimental work by veterinary surgeons.

Jowett advises that for applying this test the animal's head should be raised, the eyelids separated, and seven or eight drops of tuberculin dropped on to the eye by means of a pipette—or as an alternative method, the raising of the upper eyelid and applying the tuberculin direct to the globe of the eye by means of a small camel hair brush.

This test should be performed only on one of the eyes, the opposite eye being used as a control. He further points out that for this purpose, one must use tuberculin to which glycerine has not been added in the process of preparation, as glycerine has an irritant action on the conjunctival membrane. (*Journal of Comparative Pathology*, March, 1909, p. 16).

The reaction consists in the appearance in from eight to twenty hours of conjunctivitis, it is not attended with a rise of temperature.

We are again indebted to Trotter for experimental work in connection with this method of testing—in the *Journal of Comparative Pathology and Therapeutics* for June, 1908, he gives the result of this test on 38 animals upon which he has operated, and states "The results of this series of experiments show that tuberculin brought into contact with the conjunctival mucous membrane is not so reliable a diagnostic agent as when it is injected subcutaneously."

A French committee has also reported unfavourably on the Ophthalmic Test—it points out "In bovines the Ophthalmic Test alone is a very untrustworthy method, and cannot pretend to replace the ordinary subcutaneous method."

The Ophthalmic Test for glanders has been very little used, and also appears to be of doubtful value.

DISEASES OF ANIMALS ACTS, 1894 TO 1903.—The Board of Agriculture and Fisheries have appointed Esmond Brown, M.R.C.V.S., to be an assistant veterinary inspector (non-established) for the purposes of these Acts; and Hugh Massie Blomfield to be an assistant inspector (non-established).—*Times*.

DISEASES OF ANIMALS ACTS 1894 TO 1903, SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Parasitic Mange	Sheep Scab.	Swine Fever.	
		Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks	Animals.	Outbreaks.	Outbreaks	Outbreaks.	Slaughtered *
GT. BRITAIN. Week ended Aug. 21		16	17			2	12		5	29	222
Corresponding week in	1908 ...	16	18			17	58		...	23	212
	1907 ...	15	16			9	29		3	53	223
	1906 ...	8	12			25	41		...	14	84
Total for 34 weeks, 1909		889	1176			368	1352		470	1226	10786
Corresponding period in	1908 ...	742	995	3	112	545	1742		636	1452	8083
	1907 ...	734	966			610	1405		412	1779	8387
	1906 ...	602	888			739	1389		298	769	4339

Board of Agriculture and Fisheries, Aug. 24, 1909.

IRELAND. Week ended Aug. 14		...	...	...	...	...	...	...	...	2	18
Corresponding Week in	1908 ...	...	...	...	...	...	...	2	...	...	21
	1907 ...	...	...	...	...	...	...	3	1	3	66
	1906 ...	...	...	...	...	...	...	1	2	4	47
Total for 33 weeks, 1909		5	5	...	...	...	...	63	313	80	1339
Corresponding period in	1908 ...	5	8	...	...	...	...	31	272	127	2732
	1907 ...	1	3	...	...	4	8	60	189	93	1543
	1906 ...	3	7	...	...	5	13	66	156	68	820

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Aug. 18, 1909.

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

The Frank W. Wragg Memorial Fund.

Dear Sir,—You have been good enough from time to time to allow us to publish in your paper notifications of meetings and lists of subscribers, may we further trespass on your generosity by asking you to insert in your next issue a copy of the balance sheet in connection with the above.—We are, dear sir, yours faithfully,

JAMES F. SIMPSON, Chairman.
SIDNEY VILLAR, Secretary.

Bonnie Brae, Maidenhead.
August 24.

FRANK WRAGG MEMORIAL FUND.

Receipts.

	£	s.	d.
By Subscriptions	132	19	6

Expenditure.

To Artist's fee for oil painting, frame, and inscription	50	0	0
Chairman's expenditure for stationery, stamps etc.	1	0	6
Secretary's expenditure for stationery, stamps, circulars, etc. ...	1	19	0
Cheque book		1	0
"Argus Press" for printing, and envelopes		19	0
Auditor's fee		10	6
	54	10	0
Balance handed to Mrs. Wragg as per resolution	78	9	6
	£132	19	6

I hereby certify that the documents and receipts in connection with the above have been produced to me, which I have found to be correct.

GEORGE WRIGHT, Accountant,
8 Thurlow Terrace, Haverstock Hill, London, N.W.

James F. Simpson, Chairman.
Sidney Villar, Secretary.
July 27, 1909.

"Central Institutions."—[Educational.]

A minute of the Committee of Council on Education in Scotland, dated 12th August, 1909, declares that their Lordships having had application made to them by the respective bodies of Governors for the recognition of the following institutions, viz. :—

(*a*) The Royal (Dick) Veterinary College, Edinburgh ;
(*b*) The Glasgow Veterinary College,

as Central Institutions in terms of the Education (Scotland) Act, 1908,

and having considered the particulars as to the scope of work and the finances of each institution supplied by the Governors in their application, do hereby order as follows :—

(*a*) The Royal (Dick) Veterinary College, Edinburgh, and
(*b*) The Glasgow Veterinary College,

shall be recognised as Central Institutions for the purposes of the said Act, and shall be regarded for all purposes of the Act as if they were enumerated in the Second Schedule thereof.—*The Scotsman.*

B. Anthracis and B. Fluorescens.

In cases of mixed infections the possible attenuating or intensifying effect of one microbe upon another is well known. A case of an Anthrax Infection Modified and Attenuated by the Bacillus Fluorescens is reported by Dr. F. Chevrel in *Le Progrès Médical*. A man aged 38 developed a typical malignant pustule on the face. It was treated by cauterisation and injections of carbolic acid, and the patient was well in 10 days. Bacteriological examination showed the presence of the anthrax bacilli and also of the bacillus fluorescens in still larger quantities. A guinea-pig inoculated with discharge from the pustule only died 12 days after inoculation. This fact suggested an attenuation of the anthrax by antagonism between it and the bacillus fluorescens and led to further investigations, which fully confirmed the supposition. Mixed cultures showed rapid changes in and disappearance of the anthrax bacilli with development of the bacillus fluorescens, and by inoculation of guinea-pigs with cultures of the two bacilli in different combinations, the antagonism between them was clearly demonstrated. In the course of the experiments with culture-growths, it was found that the antagonistic power of the bacillus fluorescens to the anthrax bacillus gradually diminished.

The Trade in Decrepit Horses.

At Tower Bridge Police Court, on Thursday, 12th inst. before Mr. Rose, John Merk, a Dutch subject, described as a horse dealer of Amsterdam, was charged with cruelty to a horse.

Inspector Rogers, of the R.S.P.C.A., stated that at 7.45 a.m. he saw the prisoner in Artillery Street, Bermondsey, leading a bay gelding. The animal was very lame on both hind legs. The near hock was diseased and there there was a bony deposit on the other hock. When allowed to stand still it kept lifting the near hind leg and appeared to be in great pain. The prisoner said "It only rolls about ; I am taking it down to the steamer at St. Katherine's Docks to be sent to Amsterdam. I am a butcher over there and I have come over here to buy animals." He handed the witness his card, which read as follows :—

Paardenvleeschhouwerij—J. Merk,
Specialiteit in Rookvleesch
Planeiusstraat 28, Amsterdam.

The witness gave the prisoner into custody, and at the station told him that he had had the horse led to the yard of the Court and that it had nearly fallen down. "I will have it killed," the prisoner said. "I gave £26 for four."

The prisoner : I did not know it was lame when I bought it. It was only walking slowly.

Mr. Kirk, veterinary Surgeon, said the horse was fat and soft, and very lame from bony deposits in the hind hocks. The animal was quite unfit to travel and only fit for slaughter. It was evidently in pain from the way it was "nursing" the near hind leg.

Inspector Rogers : I know Merk very well ; he has consented to have it slaughtered.

Mr. Rose : Yes, but it does not end there.

The prisoner complained that he did not understand English properly, and Mr. Rose said that, as the consequences were rather serious, he would put the prisoner back in order that the assistance of a Dutch interpreter might be obtained.

Later in the day the evidence was repeated through an interpreter, and the prisoner said the man who sold him the horse did not tell him it was lame. He bought the horse with three others while they were standing in a stable.

Inspector Rogers said that three years ago he discovered the prisoner leading two lame horses. The prisoner saw him and ran away. He was left with the animals and had to take upon himself the responsibility of having them slaughtered.

Mr. Rose (to the interpreter) : Tell him that there is a law in England which says that any person who cruelly ill-treats a horse is liable to a penalty of £5, or in default imprisonment not exceeding three months.

The interpreter: He says he is very sorry and he has a wife and five children in Amsterdam.

Mr. Rose: I will do my small part in stopping this traffic. The only small part I am able to do is to punish persons who are leading miserable horses in pain through the streets of this district, and to punish them with severity. The responsibility for stopping the trade which involves these horses being sent across the sea rests on other shoulders. Merk must go to prison for one month with hard labour.

On hearing the sentence the prisoner burst into tears and exclaimed, "One month! I will pay—all I have I will pay."

Mr. Rose: No doubt you are prepared to pay.

The prisoner was led from the dock in great distress, crying and wringing his hands.

Mr. Rose directed that the prisoner should be informed that he had the right to appeal if he cared to exercise it. —*The Times.*

PARLIAMENTARY.

The Milk and Dairies Bill and Milk and Dairies (Scotland) Bill have been withdrawn for this Session.

Personal.

LEWIS—PENNY.—At the Station Hotel, Nairn, N.B., on Aug. 11th, by the Rev. W. R. Pirie, M.A., B.D., Robert Norman Lewis, M.R.C.V.S., Golspie, eldest son of G. Lewis, H.M.I.S., Newcastle-on-Tyne, to Helen Coventry Penny, fourth daughter of the late W. D. Penny, F.E .I.S. Nairn.

STROUD.—On Aug. 20th at Grove House, Southall, the wife of E. Lionel Stroud, F.R.C.V.S., of a son.

Sir JOHN M'FADYEAN, Royal Veterinary College, and Mr. STEWART STOCKMAN, Chief Veterinary Officer to the Board of Agriculture have been appointed members of the African Entomological Research Committee.

Congratulations to Mr. John P. Small, M.R.C.V.S., Clones, who has on the recommendation of the Right Hon. Lord Rossmore, H.M.L., for County Monahan, been appointed Justice of the Peace for that County. Mr. Small, who is a native of Kilkeel, Co. Down, has for the past seven years resided in Clones, where he enjoys an extensive practice as a veterinary surgeon. He is popular with all classes, and his elevation to the Magisterial Bench has given general satisfaction. — *Irish Society and Social Review.*

"KING EDWARD'S FAULT."

An echo of King Edward's visit to Rugby was heard at Tamworth Petty Sessions, when Henry Edcock, butcher, Polesworth, was summoned for removing pigs without a license, contrary to the Swine Fever Regulations. Defendant stated that he could not get a license at Polesworth because the police sergeant had gone to Rugby to see the King off. Application also failed at Glascote, because the police were guarding the railway bridges. "It is King Edward's fault that I am here," added defendant. He was ordered to pay 5s.—*M. T. J.*

The Hon. Secretary of the Imperial Cancer Research Fund has received from the Duke of Bedford, Vice-president, a further donation of £1000 to meet the overdraft at the bank, thus saving the fund from drawing on its capital.

Dr. Oswaldo Cruz, Director-General of the Sanitary Service, announced on July 17, at the Rio de Janeiro Academy of Medicine that the bacillus of small-pox, which was of animal origin, had been discovered in the course of bacteriological researches carried out at the Oswaldo Cruz Institute by Drs. Henrique Beaurepaire de Aragao and Prowazek.—*The Times.*

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Aug. 24.

ARMY VETERINARY CORPS.

Capt. H. C. Welch is seconded for service with the Egyptian Army. Dated July 26.

CORRESPONDENCE.

BARIUM CHLORIDE IN COLIC.

Sir,

Noticing an editorial on this drug and its use in colic, a week or two ago, I thought I would mention my mode of using it as done a good many times when in Rickmansworth, and I was always satisfied with results.

First with a piece of wool dipped in 1oz. Hydrarg. biniod. in Sp. vin. meth. 500, the spot selected, over the vein, was wiped, then the needle, boiled of course, was thrust upwards—a drop of blood appearing I knew I was clear of connective tissue, then the syringe was applied and needle, and the injection made of 2 to 4 drachms of the following solution (4 drachms generally used) Barium chloride ½ drachm, boiled water two ounces. In 15 minutes if no action, another injection was made of 2 to 2½ drachms. This may be repeated in fifteen to twenty minutes, though this was rarely necessary. Of course, if people give the drug after Chloral—Opium or other anodynes—I cannot advise as to dose required. Many years ago I found out the unwisdom of so doing with Physostigmine, and I did not make the mistake with Barium chloride.—Yours, etc.,

W. H. FLOOK.

THE PROPOSED VETERINARY BILL.

Sir,

I notice in your issue of August 7th you say that not one single advance in veterinary work has been made by the "uncertificated practitioner." You overlook the fact that Farmer Miles was the first man to operate on a rig horse in this country. I saw him operate at the R.V.C. At first the Professors of that time were inclined to ridicule him, but they soon found he (a plain unscientific man) was far in front of them.

I also notice in your issue of August 21st a letter on the same subject, signed "A Castrator." To my mind there is a good deal in what he says. If our Council do not *at some future date* intend to make use of the powers the present Act gives them over castrators, why do they wish to retain the Clause objected to in it. If we as scientific men are not able by our own practical ability to take our stand above the ordinary castrator (at least those of us who go in for castrating) I do not think the agriculturists of this country will allow an Act of Parliament to protect us and deprive them of the practical aid of castrators, many of whom are farmers and very successful operators.

In conclusion, let our Council boldly strike out the Clause complained of in our present Act and thus prove their good faith in the matter.

M.R.C.V.S.

[Why does our correspondent say "boldly?" Why not "stupidly?"—ED.].

COMMUNICATIONS AND PAPERS RECEIVED.—Messrs.. F. E. Place, C. J. Kiralfy, G. Elmes, Sam Matthews. "A Castrator," "Enquirer."

The British Esperantist, Torquay Times. Aug. 21.

CATTLE OF SOUTHERN INDIA, by Lieut.-Col. W. D. Gunn, Supt. I.C.V.D., Madras, (Dept. of Agric., Madras, Vol. iii. Bulletin No. 60). Ryl. 8vo., 66 pp., 67 photo-plates, cloth lettered.

Messrs. J. B. Robertson, J. R. R. Hoggan, G. H. Locke. *The Scotsman, Irish Society.* Aug. 28.

Versuche und Beobachtungen über die Entwicklung von Trypanosoma Lewisi in der Rattenlaus Haematopinus Spinulosus. Capt. F. S. H. Baldry, I.C.V.D. Abdruck aus dem Archiv für Protistenkunde Herausgegenben von Dr. M. Hartmann und Dr. S. von Prowazek.

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